

4172-120-RCE

Section II (Remarks)**Current Status of the Claims**

Claims 1-22, 76-78, 80, 81 and 87 are currently pending and the subject of the June 14, 2007 Office Action. Claims 23-68, 71, 79 and 82-86 have been withdrawn.

Rejection of Claims Under 35 U.S.C. § 102(b)

In the June 14, 2007 Office Action, claims 76, 78 and 87 were rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 10-266,015 (see Abstract).

The Japanese reference discloses forming a mixture of a fluororesin and solvent type soluble resin, and this composition is extrusion coated on a core wire. The coated wire then is heat-treated at the melting point of the fluororesin and dipped in the solvent to dissolve the solvent-soluble resin to form a porous material. The core wire is thereafter drawn and removed to yield a hollow porous resin yarn.

This Japanese reference does not disclose a removable substrate. It only describes making a porous coating on a wire from a mixture of fluororesin and solvent-soluble resin so that the solvent-soluble resin is removal to form porosity in the applied coating. By forming pores in the coating in such manner, and drawing the wire from the porous coating, a hollow porous resin yarn is formed. The Japanese reference does not describe any problem with such technique, and it does not disclose any issue of adhesion of the wire to the deposited resin yarn. The drawing and removal of the core wire has the potential to shear and rupture the hollow membrane, and any rupturing of the membrane material will render the hollow yarn useless for filtration, dialysis, ultra-filtration, or the like. The Japanese reference, however, does not address or appreciate this problem and does not disclose any ionomer membrane composition.

Accordingly, the Japanese reference does not face or resolve the problem that has been resolved by the present invention.

4172-120-RCE

Applicant's claimed invention as set forth in claim 76 is directed to a method for forming a polymeric hollow fiber article, comprising:

- (a) forming a precursor structure comprising a solid core fiber extrusion coated with a layer of a removable substrate material over which is coated a layer of a polymeric membrane; and
- (b) removing the layer of removable substrate material to form a hollow space around the solid core fiber between it and the polymeric membrane so that the polymeric membrane forms a polymeric hollow fiber comprising a tubular membrane wall enclosing an elongated lumen therein, from which said solid core fiber is removable.

Applicants' claimed invention therefore requires a removable substrate material layer between the solid core fiber and a polymeric membrane layer. This is a discrete layer structure that is fundamentally different than the resin mixture coating of the Japanese reference, wherein the resin mixture coating is treated to form porosity therein.

In the method of the Japanese reference, the resin mixture coating remains in contact with the wire and the wire is drawn out of the coating to form the hollow passage within the porous hollow yarn. This Japanese reference technique is fundamentally different from and non-suggestive of the applicants' method of

"removing the layer of removable substrate material to form a hollow space around the solid core fiber between it and the polymeric membrane so that the polymeric membrane forms a polymeric hollow fiber comprising a tubular membrane wall enclosing an elongated lumen therein, from which said solid core fiber is removable"

as required by applicants' claimed invention.

Thus, the removable substrate after its removal forms a hollow space around the solid core fiber, between the solid core fiber and the polymeric membrane. In this manner, the solid core fiber is readily removed from the open lumen, without binding, tearing or otherwise damaging the polymeric membrane. These differences distinguish the applicants' claimed method from the technique of the Japanese reference.

4172-120-RCE

It therefore is requested that the rejection of independent claim 76 and dependent claims 78 and 87 thereunder, be withdrawn.

Rejection of Claims Under 35 U.S.C. § 103(a)

Claims 1-22, 77, 80 and 81, were rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-266,015 in view of Hoffman et al U.S. Patent 6,113,722 (see col. 2, lines 4-20 and col. 3, lines 34-65).

Hoffman teaches to form microscopic hollow tubes by utilizing a fiber that is coated, with the fiber being removed by solvent dissolution, vaporization, melting, or physically pulling out the fiber from the formed tube material if the fiber surface has been partially removed by solvation or reaction (see column 3, lines 56-65 of the patent).

At column 3, Hoffman also describes using hollow fibers as the substrate, with the ends plugged or capped prior to depositing the tube material on the exterior surface of the hollow fiber substrate. The examiner has taken such teaching of using a plug or end cap and has said "the hollow fiber would require a barrier material, which would naturally be a metal wire or fiber as shown in Japanese -015." In this respect, the examiner has also cited Hoffman at column 3, lines 41-45, stating that the barrier material, i.e., the plug or end cap, can be made from a sacrificial material or a material that will be removed "for example by cutting or machining before the [hollow] fiber is removed." Alternatively, Hoffman discloses use of line-of-sight techniques for "depositing wall materials that coat the exterior but not the interior of the hollow fiber."

The examiner's statement to utilize a hollow fiber and to use a removable substrate over the wire has no basis in either the Japanese reference or Hoffman. The examiner is working backwards from the disclosure of the present invention in hindsight considering the references and then hypothesizing something that is not set forth in any manner in Hoffman or the Japanese reference.

The barrier material referred to by the examiner is actually the plug or end cap taught by Hoffman. To change this into a solid fiber covered by a hollow fiber covered by tube-forming

4172-120-RCE

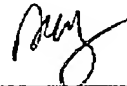
material is simply beyond the scope of either Hoffman or the Japanese reference, and finds its basis solely in the present invention. Someone looking to end cap or plug a hollow fiber as Hoffman directs would not seek to force a core through the hollow fiber, simply because a plug or cap would be more convenient, more readily removed, and less labor-intensive and cheaper. Independent claims 1 and 76, as amended, are clearly patentably distinguished over the Japanese reference and Hoffman for these reasons, as are claims 2-22, 80 and 81 dependent thereunder.

The examiner therefore is requested to withdraw the 35 USC 103 (a) rejection of claims 1-22, 77, 80 and 81.

CONCLUSION

Based on the foregoing, applicants' pending claims 1-22, 76-78, 80-81 and 87 are patentably distinguished over the art, and in form and condition for allowance. The examiner is therefore requested to responsively issue a Notice of Allowance. If any issues require further resolution, the examiner is requested to contact the undersigned attorney at (919) 419-9350 to discuss same.

Respectfully submitted,



Steven J. Hultquist
Reg. No. 28,021
Attorney for Applicants

INTELLECTUAL PROPERTY/
TECHNOLOGY LAW
Phone: (919) 419-9350
Fax: (919) 419-9354
Attorney File No.: 4172-120-RCE

Enclosures:
Credit Card Form PTO-2038 [1 pg.]

The USPTO is hereby authorized to charge any deficiency or credit any overpayment of fees properly payable for this document to Deposit Account No. 08-3284